TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

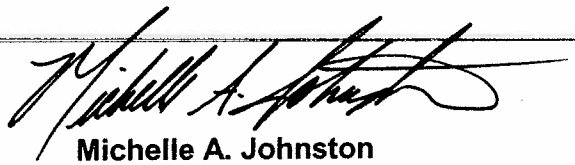
ANALYTICAL REPORT

Perfluorocarbon (PFC) Analysis
Private Wells

Lot #: D9H120160

Dena Haverland

Dalton Utilities
1200 V.D. Parrot Jr. Parkway
Dalton, GA 30721



Michelle A. Johnston
Project Manager

August 21, 2009

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Standard Deliverables

Report Contents	Total Number of Pages
Standard Deliverables *The **Cover Letter** and the **Report Cover** page are considered integral parts of this Standard Deliverable package. This report is incomplete unless all pages indicated in this Table of Contents are included.*	

Case Narrative
D9H120160

TestAmerica Denver utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameters listed on the methods summary page in accordance with the methods indicated. Dilution factors and footnotes are provided on each datasheet to assist in the interpretation of the results.

The results relate only to the samples in this report and meet all requirements of NELAC. All data have been reviewed for compliance with the laboratory QA/QC plan and have found to be compliant with laboratory protocols with any exceptions noted below.

Please note that Non-Detect (ND) results have been evaluated down to the Method Detection Limit (MDL) and should be considered ND at the MDL. Unless otherwise noted, results for solids have been dry weight corrected.

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Sample Arrival and Receipt
The following report contains the analytical results for four water samples received at TestAmerica Denver on August 12, 2009, according to documented sample acceptance procedures. The samples were received in good condition at a temperature of 1.5°C. No anomalies were encountered during sample receipt.

Standards
Analytical standards were prepared using commercially available certified solutions containing all compounds of interest.

The mass labeled compounds 13C4 PFBA, 13C2 PFHxA, 18O2 PFHxS, 13C4 PFOA, 13C4 PFOS, 13C5 PFNA, 13C2 PFDA, 13C2 PFUnA, 13C2 PFDoA, and D3 MeFOSA were introduced at the extraction step and were used for internal standards for the quantitation of the target compounds.

Sample Extraction and Analysis
The samples presented in this report were extracted for the target analytes by TestAmerica Denver's Standard Operating Procedure (SOP) DV-OP-0019 and analyzed for the target analytes by TestAmerica Denver's SOP DV-LC-0012.

Method QC Samples
The Method Blank is processed reagent water spiked with surrogate and prepared with each batch of 20 samples of the same matrix. The method blanks were non-detect at the reporting limits for the target analytes.

Each batch is prepared with low and mid level Laboratory Control Samples (LCS). The LCS recoveries for both levels were within established control limits.

Analytical Comments
Please note during the extraction process all four samples clogged the cartridge; therefore, the organic preparation chemist vacuum filtered each sample before continuing with the extraction procedure. A second cartridge also had to be used during the extraction process.

The Standard Operating Procedure (SOP) was altered slightly for these samples in the sample preparation for FOSA. Sodium hydroxide was added to all four samples to obtain a pH of 14 instead of the SOP required <2. The basic pH is generating better internal standard recoveries for Me FOSA.

The MS/MSD analyses performed on a sample from another client and/or lot associated with QC batch 9226398 exhibited an internal standard recovery below 50% for 13C2 PFDoA. The acceptable low-level and mid-level LCS analyses data indicated the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The method required MS/MSD could not be performed for QC batch 9226397, due to insufficient sample volume. Method precision and accuracy have been verified by the acceptable low-level LCS and mid-level LCS/LCSD analyses data.

Continuing Calibration Verification (CCV) standards associated with samples in QC batch 9226398 exhibited a %D value out of range, biased high, for Perfluorotridecanoic acid (PFTriA). This is an indicator that data may be biased high. As no detectable concentrations of Perfluorotridecanoic acid (PFTriA) are present in the associated samples, corrective action is deemed unnecessary.

No other anomalies were observed.

EXECUTIVE SUMMARY - Detection Highlights

D9H120160

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
#12 300 ACORN DRIVE 08/11/09 09:56 002				
Perfluorooctanoic Acid	0.060	0.020	ug/L	DEN -LC-0012
Perfluorooctanesulfonate	0.017 J	0.020	ug/L	DEN -LC-0012
Perfluorobutanoic acid (PFBA)	0.0089 J	0.020	ug/L	DEN -LC-0012
Perfluoropentanoic acid (PFPA)	0.015 J	0.030	ug/L	DEN -LC-0012
Perfluorohexanoic acid (PFHxA)	0.023	0.020	ug/L	DEN -LC-0012
Perfluoroheptanoic acid (PFHpA	0.023	0.020	ug/L	DEN -LC-0012
Perfluorobutane sulfonate (PFB	0.0094 J	0.020	ug/L	DEN -LC-0012
Perfluorohexane sulfonate (PFH	0.014 J	0.030	ug/L	DEN -LC-0012

METHODS SUMMARY

D9H120160

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
LC/MS/MS PFCs	DEN -LC-0012	SW846 FOSA spec

References:

DEN Severn Trent Laboratores, Denver, Facility Standard Operating Procedure.

METHOD / ANALYST SUMMARY

D9H120160

ANALYTICAL METHOD	ANALYST	ANALYST ID
DEN -LC-0012	Jacqueline Bonnett	003601

References:

DEN Severn Trent Laboratores, Denver, Facility Standard Operating Procedure.

SAMPLE SUMMARY

D9H120160

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
LH100	001	#11 4619 BRACKETT RIDGE RD	08/11/09	09:13
LH104	002	#12 300 ACORN DRIVE	08/11/09	09:56
LH106	003	#13 277 BRACKETT RIDGE LOOP	08/11/09	10:39
LH107	004	#14 1063 BRACKETT RIDGE RD	08/11/09	13:38

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

Dalton Utilities

Client Sample ID: #11 4619 BRACKETT RIDGE RD

HPLC

Lot-Sample #...: D9H120160-001 **Work Order #...:** LH1001AA **Matrix.....:** WATER
Date Sampled...: 08/11/09 09:13 **Date Received..:** 08/12/09
Prep Date.....: 08/14/09 **Analysis Date..:** 08/19/09
Prep Batch #...: 9226398 **Analysis Time..:** 03:21
Dilution Factor: 1
Method.....: DEN -LC-0012

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Perfluorooctanoic Acid	ND	0.020	ug/L	0.0055
Perfluorooctanesulfonate	ND	0.020	ug/L	0.0068
Perfluorobutanoic acid (PFBA)	ND	0.020	ug/L	0.0062
Perfluoropentanoic acid (PFPA)	ND	0.030	ug/L	0.0082
Perfluorohexanoic acid (PFHxA)	ND	0.020	ug/L	0.0030
Perfluoroheptanoic acid (PFHpA)	ND	0.020	ug/L	0.0054
Perfluorononanoic acid (PFNA)	ND	0.020	ug/L	0.0065
Perfluorodecanoic acid (PFDA)	ND	0.020	ug/L	0.0026
Perfluoroundecanoic acid (PFUnA)	ND	0.020	ug/L	0.0025
Perfluorododecanoic acid (PFDoA)	ND	0.020	ug/L	0.0040
Perfluorotridecanoic acid (PFTriA)	ND	0.020	ug/L	0.0072
Perfluorotetradecanoic acid (PFTeA)	ND	0.020	ug/L	0.0087
Perfluorobutane sulfonate (PFBS)	ND	0.020	ug/L	0.0045
Perfluorohexane sulfonate (PFHxS)	ND	0.030	ug/L	0.0084

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
13C4 PFOA	98	(50 - 200)
13C4 PFOS	66	(50 - 200)
13C4 PFBA	83	(50 - 200)
13C2 PFHxA	93	(50 - 200)
18O2 PFHxS	83	(50 - 200)
13C5 PFNA	81	(50 - 200)
13C2 PFDA	72	(50 - 200)
13C2 PFUnA	69	(50 - 200)
13C2 PFDoA	71	(50 - 200)

Dalton Utilities

Client Sample ID: #11 4619 BRACKETT RIDGE RD

HPLC

Lot-Sample #...: D9H120160-001 **Work Order #...:** LH1001AC **Matrix.....:** WATER
Date Sampled...: 08/11/09 09:13 **Date Received..:** 08/12/09
Prep Date.....: 08/14/09 **Analysis Date..:** 08/16/09
Prep Batch #...: 9226397 **Analysis Time..:** 19:50
Dilution Factor: 1
Method.....: DEN -LC-0012

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Perfluorooctane sulfonamide (FOSA)	ND	0.050	ug/L	0.0057

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
MeFOSA	58	(50 - 200)

Dalton Utilities

Client Sample ID: #12 300 ACORN DRIVE

HPLC

Lot-Sample #...: D9H120160-002 **Work Order #...:** LH1041AA **Matrix.....:** WATER
Date Sampled...: 08/11/09 09:56 **Date Received..:** 08/12/09
Prep Date.....: 08/14/09 **Analysis Date..:** 08/19/09
Prep Batch #...: 9226398 **Analysis Time..:** 03:37
Dilution Factor: 1
Method.....: DEN -LC-0012

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Perfluorooctanoic Acid	**0.060**	**0.020**	**ug/L**	**0.0055**
Perfluorooctanesulfonate	**0.017 J**	**0.020**	**ug/L**	**0.0068**
Perfluorobutanoic acid (PFBA)	**0.0089 J**	**0.020**	**ug/L**	**0.0062**
Perfluoropentanoic acid (PFPA)	**0.015 J**	**0.030**	**ug/L**	**0.0082**
Perfluorohexanoic acid (PFHxA)	**0.023**	**0.020**	**ug/L**	**0.0030**
Perfluoroheptanoic acid (PFHpA)	**0.023**	**0.020**	**ug/L**	**0.0054**
Perfluorononanoic acid (PFNA)	ND	0.020	ug/L	0.0065
Perfluorodecanoic acid (PFDA)	ND	0.020	ug/L	0.0026
Perfluoroundecanoic acid (PFUnA)	ND	0.020	ug/L	0.0025
Perfluorododecanoic acid (PFDoA)	ND	0.020	ug/L	0.0040
Perfluorotridecanoic acid (PFTriA)	ND	0.020	ug/L	0.0072
Perfluorotetradecanoic acid (PFTeA)	ND	0.020	ug/L	0.0087
Perfluorobutane sulfonate (PFBS)	**0.0094 J**	**0.020**	**ug/L**	**0.0045**
Perfluorohexane sulfonate (PFHxS)	**0.014 J**	**0.030**	**ug/L**	**0.0084**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
13C4 PFOA	96	(50 - 200)
13C4 PFOS	59	(50 - 200)
13C4 PFBA	82	(50 - 200)
13C2 PFHxA	92	(50 - 200)
18O2 PFHxS	79	(50 - 200)
13C5 PFNA	79	(50 - 200)
13C2 PFDA	63	(50 - 200)
13C2 PFUnA	62	(50 - 200)
13C2 PFDoA	64	(50 - 200)

NOTE(S):

J Estimated result. Result is less than RL.

Dalton Utilities

Client Sample ID: #12 300 ACORN DRIVE

HPLC

Lot-Sample #...: D9H120160-002 **Work Order #...:** LH1041AC **Matrix.....:** WATER
Date Sampled...: 08/11/09 09:56 **Date Received..:** 08/12/09
Prep Date.....: 08/14/09 **Analysis Date..:** 08/16/09
Prep Batch #...: 9226397 **Analysis Time..:** 19:57
Dilution Factor: 1
Method.....: DEN -LC-0012

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Perfluorooctane sulfonamide (FOSA)	ND	0.050	ug/L	0.0057

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
MeFOSA	55	(50 - 200)

Dalton Utilities

Client Sample ID: #13 277 BRACKETT RIDGE LOOP

HPLC

Lot-Sample #...: D9H120160-003 **Work Order #...:** LH1061AA **Matrix.....:** WATER
Date Sampled...: 08/11/09 10:39 **Date Received..:** 08/12/09
Prep Date.....: 08/14/09 **Analysis Date..:** 08/19/09
Prep Batch #...: 9226398 **Analysis Time..:** 03:53
Dilution Factor: 1
Method.....: DEN -LC-0012

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Perfluorooctanoic Acid	ND	0.020	ug/L	0.0055
Perfluorooctanesulfonate	ND	0.020	ug/L	0.0068
Perfluorobutanoic acid (PFBA)	ND	0.020	ug/L	0.0062
Perfluoropentanoic acid (PFPA)	ND	0.030	ug/L	0.0082
Perfluorohexanoic acid (PFHxA)	ND	0.020	ug/L	0.0030
Perfluoroheptanoic acid (PFHpA)	ND	0.020	ug/L	0.0054
Perfluorononanoic acid (PFNA)	ND	0.020	ug/L	0.0065
Perfluorodecanoic acid (PFDA)	ND	0.020	ug/L	0.0026
Perfluoroundecanoic acid (PFUnA)	ND	0.020	ug/L	0.0025
Perfluorododecanoic acid (PFDoA)	ND	0.020	ug/L	0.0040
Perfluorotridecanoic acid (PFTriA)	ND	0.020	ug/L	0.0072
Perfluorotetradecanoic acid (PFTeA)	ND	0.020	ug/L	0.0087
Perfluorobutane sulfonate (PFBS)	ND	0.020	ug/L	0.0045
Perfluorohexane sulfonate (PFHxS)	ND	0.030	ug/L	0.0084

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
13C4 PFOA	97	(50 - 200)
13C4 PFOS	67	(50 - 200)
13C4 PFBA	84	(50 - 200)
13C2 PFHxA	89	(50 - 200)
18O2 PFHxS	84	(50 - 200)
13C5 PFNA	85	(50 - 200)
13C2 PFDA	69	(50 - 200)
13C2 PFUnA	67	(50 - 200)
13C2 PFDoA	73	(50 - 200)

Dalton Utilities

Client Sample ID: #13 277 BRACKETT RIDGE LOOP

HPLC

Lot-Sample #...: D9H120160-003 **Work Order #...:** LH1061AC **Matrix.....:** WATER
Date Sampled...: 08/11/09 10:39 **Date Received..:** 08/12/09
Prep Date.....: 08/14/09 **Analysis Date..:** 08/16/09
Prep Batch #...: 9226397 **Analysis Time..:** 20:04
Dilution Factor: 1
Method.....: DEN -LC-0012

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Perfluorooctane sulfonamide (FOSA)	ND	0.050	ug/L	0.0057

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
MeFOSA	65	(50 - 200)

Dalton Utilities

Client Sample ID: #14 1063 BRACKETT RIDGE RD

HPLC

Lot-Sample #...: D9H120160-004 **Work Order #...:** LH1071AA **Matrix.....:** WATER
Date Sampled...: 08/11/09 13:38 **Date Received..:** 08/12/09
Prep Date.....: 08/14/09 **Analysis Date..:** 08/19/09
Prep Batch #...: 9226398 **Analysis Time..:** 04:09
Dilution Factor: 1
Method.....: DEN -LC-0012

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Perfluorooctanoic Acid	ND	0.020	ug/L	0.0055
Perfluorooctanesulfonate	ND	0.020	ug/L	0.0068
Perfluorobutanoic acid (PFBA)	ND	0.020	ug/L	0.0062
Perfluoropentanoic acid (PFPA)	ND	0.030	ug/L	0.0082
Perfluorohexanoic acid (PFHxA)	ND	0.020	ug/L	0.0030
Perfluoroheptanoic acid (PFHpA)	ND	0.020	ug/L	0.0054
Perfluorononanoic acid (PFNA)	ND	0.020	ug/L	0.0065
Perfluorodecanoic acid (PFDA)	ND	0.020	ug/L	0.0026
Perfluoroundecanoic acid (PFUnA)	ND	0.020	ug/L	0.0025
Perfluorododecanoic acid (PFDoA)	ND	0.020	ug/L	0.0040
Perfluorotridecanoic acid (PFTriA)	ND	0.020	ug/L	0.0072
Perfluorotetradecanoic acid (PFTeA)	ND	0.020	ug/L	0.0087
Perfluorobutane sulfonate (PFBS)	ND	0.020	ug/L	0.0045
Perfluorohexane sulfonate (PFHxS)	ND	0.030	ug/L	0.0084

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
13C4 PFOA	100	(50 - 200)
13C4 PFOS	63	(50 - 200)
13C4 PFBA	86	(50 - 200)
13C2 PFHxA	93	(50 - 200)
18O2 PFHxS	85	(50 - 200)
13C5 PFNA	82	(50 - 200)
13C2 PFDA	67	(50 - 200)
13C2 PFUnA	64	(50 - 200)
13C2 PFDoA	64	(50 - 200)

Dalton Utilities

Client Sample ID: #14 1063 BRACKETT RIDGE RD

HPLC

Lot-Sample #...: D9H120160-004 **Work Order #...:** LH1071AC **Matrix.....:** WATER
Date Sampled...: 08/11/09 13:38 **Date Received..:** 08/12/09
Prep Date.....: 08/14/09 **Analysis Date..:** 08/16/09
Prep Batch #...: 9226397 **Analysis Time..:** 20:11
Dilution Factor: 1
Method.....: DEN -LC-0012

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Perfluorooctane sulfonamide (FOSA)	ND	0.050	ug/L	0.0057

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
MeFOSA	61	(50 - 200)